

**Six-monthly Cumulative Indexes to
Science Abstracts**

The annual cumulative indexes for the 1966 (volume 69) issues will be published in two parts, each covering a six-month period. The present 1966 Part I indexes should be retained for use with the January-June issues, and the Part II (July-December) indexes will be issued after the publication of the December issue. Abstracts will continue to be numbered consecutively throughout the twelve monthly issues of each Section as in previous years, and these twelve issues will complete a single volume.

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SUBJECT INDEX-PART I

INTRODUCTION

The entries in this index refer to the abstracts by their serial number, not by the page number. The entries are grouped under headings (printed in bold type, e.g. "Abrasion") which represent, in the main, general categories or concepts rather than specific names. If a heading for a particular subject does not appear, a more general heading should be consulted; for example, "Zone plates" would be listed under "Diffraction/light"; "Barkhausen discontinuities" under "Magnetization process". There are numerous cross-references directing attention to related headings in other parts of the index.

Many of the headings are subdivided by the use of subheadings, which are indented (i.e. printed slightly to the right) and commence with a small letter (for example, see the subheadings under "Absorption").

ARRANGEMENT OF HEADINGS AND SUBHEADINGS

The headings are arranged throughout the index in alphabetical order according to British Standard 1749:1951 (the "word by word" system, not "reading right through"). The subheadings, with a few exceptions, are themselves arranged in alphabetical order under their respective headings. The exceptions (for example, see the subheadings under "Spectra", "Crystal structure, atomic") are cases where a more logical order is preferable to a purely alphabetical one.

ARRANGEMENTS OF ENTRIES UNDER HEADINGS

Entries are arranged in two alphabetical groups as follows. First group: generalities and named substances (in words); second group: named substances (chemical formulae). If a search is being made for a particular substance, both the first and second alphabetical groups should be inspected since, for example, alumina may also be listed as Al_2O_3 .

COLLECTED LIST OF SUBJECT HEADINGS

The alphabetical arrangement of the headings is the most convenient for locating a known heading quickly, but there may be other related headings elsewhere in the index of which the reader is unaware, and which he would only come across by accident. To assist the reader to discover all the headings appropriate to his subject, a collected list of the headings is given on pages S2 to S16, which follow this page; they should be consulted as a matter of routine each time a search is made. In this list, the headings are not arranged in alphabetical order, but are grouped into sections by subject on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. By using this list, the reader can quickly determine which are the headings appropriate to his subject, and they are then easily found in the main index in their alphabetical position.

HEADINGS WITH NO ENTRIES

Because physics is a developing subject, it is not possible to maintain the list of headings unchanged from year to year; it is subject to a continuous process of revision, with the introduction of new headings and subheadings, and the alteration and elimination of old ones. This process is a gradual one, however, and the great majority of the headings are the same as those of the previous year. To assist in maintaining the continuity of the index, all the headings in current use in a given year are printed, even those for which there are no abstracts to be recorded. The latter are followed by the announcement "No entries"; this supplies confirmation that these headings have not been dropped from the index, and entries may reappear under them in the next issue of the index.

ELEMENTS, COMPOUNDS AND OTHER SUBSTANCES

The names of elements, their compounds, a few compounds of special interest (e.g. "Ruby", "Water") and a few common materials (e.g. "Wood", "Paper") are included as headings or subheadings (e.g. "barium titanate" under "Barium compounds"). Under these, as well as under the appropriate "subject" headings, are listed any abstracts which contain significant physical information about the element, compound or substance named; except however, that abstracts listed under headings referring to nuclear properties, including radioactivity, are not necessarily also listed under the substance name. The entries under these headings are themselves arranged in alphabetical order of substance or nuclide names, so that a given substance can be readily located.

Inorganic compounds of the elements are listed under the first element in the chemical formula, and all the compounds of a given element are grouped under a single heading (e.g. "Sodium compounds"). Alloys are listed under compounds of the base or first-named constituent, e.g. Au-Ag alloys under "Gold compounds". There are also four special headings for the common alloys: "Aluminium alloys", "Copper alloys", "Iron alloys", "Nickel alloys". Organic compounds are grouped under "Organic compounds", "Polymers", "Plastics" and under special substance headings such as "Paper", "Proteins", etc.; all the latter are listed in the collected list of headings at the end of the index.

BEFORE USING INDEX, CONSULT LIST OF SUBJECT HEADINGS ON PAGES S2 - S16,
WHICH FOLLOW THIS PAGE

LIST OF SUBJECT INDEX HEADINGS

The headings used in the Alphabetical Index are listed below. The headings are grouped into sections on the same basis as the arrangement of the abstracts in the monthly issues of Physics Abstracts. Each section lists the headings which concern its subject and it follows that many of the headings are listed in several places.

An introduction to the Subject Index will be found on page S1.

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Physics fundamentals
Reviews

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Books
History

Laboratories
Laboratory apparatus and technique

Physics
Physics fundamentals

Reviews
Teaching
demonstrations

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Angle measurement
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Time measurement
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Series

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digital computer pro-
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applications
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Probability

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Relaxation
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Thermodynamics

Entropy
properties of substances
Equations of state
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Thermodynamic properties
Thermodynamics
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Radiative transfer
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Dynamics
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Elasticity · Plasticity
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Elasticity
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Pendulums
Pressure
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Relaxation
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VIBRATIONS • WAVES • ACOUSTICS

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Vibrations
Waves

VIBRATIONS • ELASTIC WAVES

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Membranes
Oscillations
Piezoelectric oscillations
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Vibrating bodies
Vibrations
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Waves

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Interference/
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Interferometry/
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Hearing

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 acoustic
Speech

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Radiative transfer
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Thermostats

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Liquefaction, gases
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Low-temperature technique
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Magnetism

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AND CIRCUITS**

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Circuits
Counting circuits
Dielectric measurement
Electrical measurement
Fluctuations/
electrical
High-voltage production
Image convertors and amplifiers
Plasma/
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direct conversion
Magnetohydrodynamics

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Electromagnetic fields
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Optical pumping

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Tritons

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 Nuclear excitation
 Nuclear forces
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Gyromagnetic ratio
Ionization potential
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Isotopes
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organic
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electronic structure, organic
nuclear coupling
rotation
vibration
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diatomic, radiofrequency
polyatomic
polyatomic, radiofrequency
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inorganic solids
radiofrequency
organic molecules and substances
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radiofrequency
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Molecules/
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relaxation

Nuclear magnetic resonance
[and relaxation]
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Paramagnetic resonance and
[relaxation]

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Association
gases
Free radicals
Heat of dissociation

Molecules/
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dissociation energies

Intermolecular Mechanics

Collision processes
Molecular beams

Molecules/
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Macromolecules · Polymers

Association
Heat of formation
Isomerism
Macromolecules

Molecules/
configuration and dimensions,
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Proteins

Mesic Molecules

Molecules, mesic

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Arcs, electric
Breakdown, electric
gases
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Discharges, electric
glows
high-frequency
Gas-discharge tubes
Lightning
Sparks, electric
Sputtering

IONIZATION

Dissociation
Ion velocity
Ionization
gases
Ionization potential
Ionization, surface

Ions
recombination
scattering
Shock waves/
effects
Space charge

PLASMA

Discharges, electric
glows
high-frequency
Electron gas
Ionization
gases
Nuclear fusion
Nuclear reactors, fusion

Plasma
electromagnetic wave propagation
magnetohydrodynamics
measurement techniques
Shock waves/
effects
Space charge
Thermonuclear reactions

Plasma Confinement

Plasma/
confinement

Plasma Oscillations and Stability

Plasma/
magnetohydrodynamics
oscillations
stability

Plasma Devices

Nuclear reactors, fusion
Plasma/
devices

FLUIDS

Flow
Fluids
Hydrodynamics
Hydrostatics

Oscillations
Turbulence
Viscosity
Vortices
Waves

MECHANICS OF GASES

Acoustic streaming
Aerodynamics
Anemometers
Compressibility/
 gases
Condensation
Density/
 gases
Diffusion in gases
 thermal
Flow/
 gases
Flowmeters
Gases
Humidity

Hygrometers
Jets
Manometers
Moisture
Pressure
Pumps
Radiation pressure
Supersonic flow
Turbulence
Viscometers
Viscosity/
 gases
Vortices
Waves

GASEOUS STATE

Absorption/
 acoustic waves
 acoustic waves, ultrasonic
 electromagnetic waves
 light
Association/
 gases
Breakdown, electric/
 gases
Conductivity, electrical/
 gases
 measurement
Conductivity, thermal/
 gases
 measurement
Dielectric properties of substances/
 gases
Diffraction/
 acoustic waves
 acoustic waves, ultrasonic
 electromagnetic waves
 light
Diffusion/
 acoustic waves
 electromagnetic waves
 light
Electrical properties of substances
Electroluminescence
Equations of state/
 gases
Gases
Helium/
 gas
Interference/
 acoustic waves
Joule—Thomson effect
Kinetic theory/
 gases
Lasers/
 gaseous
Luminescence/
 gases

Magnetic resonance and relaxation
Molecules/
 intermolecular mechanics
Nuclear magnetic resonance and relaxation
Nuclear quadrupole resonance
Optical properties of substances
Paramagnetic resonance and relaxation
Reflection/
 acoustic waves
 acoustic waves, ultrasonic
 electromagnetic waves
 light
Refraction/
 acoustic waves
 acoustic waves, ultrasonic
 electromagnetic waves
 light
Scattering/
 acoustic waves
 acoustic waves, ultrasonic
 electromagnetic waves
 light
Sorption
Specific heat/
 gases
Spectra
Statistical mechanics
Thermoluminescence
Transmission/
 acoustic waves
 acoustic waves, ultrasonic
 light
Velocity/
 acoustic waves
 acoustic waves, ultrasonic

Viscosity • Diffusion

Diffusion in gases
 thermal
Transport processes
Viscosity/
 gases

VACUUM PHYSICS

Glass—metal seals
Leak detection
Manometers
Sputtering

Vacuum apparatus
Vacuum gauges
Vacuum pumps
Vacuum technique

MECHANICS OF LIQUIDS

Acoustic streaming
Bubbles
Capillarity
Cavitation
Compressibility/
liquids
Density/
liquids
Diffusion in liquids
thermal
Double refraction/
flow

Drops
Elasticity/
liquids
Emulsions
Films/
liquid
Filters
Flow/
liquids
Flowmeters
Foams
Hydrodynamics

Hydrostatics
Jets
Liquid oscillations
Liquid waves
surface
Lubrication
Moisture
Pressure
Pumps
Radiation pressure
Rheology
Schlieren systems

Sprays
Surface energy
Surface tension
Surface tension measurement
Thixotropy
Turbulence
Viscometers
Viscosity/
liquids
Vortices
Wetting

LIQUID STATE

Liquids

Theory and Structure of Liquids

Association/
liquids
Electron diffraction examination
Equations of state/ [of materials
liquids
Films/
liquid
Heat of solution
Liquid crystals

Liquids
structure
theory
Neutron diffraction examination of
Neutrons/ [materials
scattering
Polymers
Solubility
Solutions
X-ray examination of materials/
liquids

Viscosity · Surface Tension · Diffusion

Diffusion in liquids
thermal
Filters
Membranes
Osmosis

Sorption
Surface tension
Surface tension measurement
Transport processes
Viscosity/
liquids

Optical Properties of Liquids

Absorption/
electromagnetic waves
light
Diffraction/
electromagnetic waves
light
Diffusion/
electromagnetic waves
light
Double refraction
flow
Electroluminescence
Luminescence/
liquids and solutions
Optical pumping
Optical properties of substs.

Raman spectra
inorganic
organic
Reflection/
electromagnetic waves
light
Refraction/
electromagnetic waves
light
Scattering/
electromagnetic waves
light
Spectra/
inorganic liquids and solutions
Thermoluminescence
Transmission/
light

Aerosols
Centrifuges
Colloids
Disperse systems
Electrophoresis
Emulsions

Filters
Foams
Gels
Heat of solution
Membranes

DISPERSIONS · COLLOIDS

Osmosis
Particle size
Precipitation
Sedimentation
Sols

Solubility
Solutions
Surface phenomena
Suspensions
Thixotropy

CHANGE OF STATE

Equations of state
gases
liquids
solids
Evaporation
Freezing
Heat of fusion

Heat of sublimation
Heat of transformation
Heat of vaporization
Humidity
Liquefaction, gases
Melting
Melting point

Phase equilibrium
Phase transformations
Sublimation
Supercooling
Vapour pressure
Vapour pressure measurement
Vaporization

SOLID-STATE PHYSICS

Bonds
Crystals
 internal fields
Crystal properties

Equations of state/
 solids
Metals
 theory

Mössbauer effect
Nuclear orientation
Orbital calculation methods

Solids
 structure
 theory

STRUCTURE OF SOLIDS · ALLOYS

Alloys
Crystal structure
Density/
 solids
Fibres
Filters
Granular structure
Heat treatment
 alloys
Membranes

Particle size
Permeability, mechanical
Polymorphism
Porous materials
Powders
Sintering
Solids
 structure
Solid solutions
Solubility

Solid-State Phase Transformations

Heat treatment
 alloys
Phase equilibrium

Phase transformations/
 solid-state
Polymorphism
Precipitation

Surfaces

Surface energy
Surface measurement

Surface phenomena
Surface texture

Films

Evaporation
Films/
 solid

Sputtering
Sublimation

Adsorption

Adsorbed layers
Adsorption

Heat of adsorption
Sorption

NON-CRYSTALLINE STATE

Amorphous state
Glass
Plastics
Polymers

Rubber
Vitreous state
Waxes

CRYSTALLOGRAPHY

Crystal chemistry
Crystal properties
Crystal structure
Crystallization
Crystallography
Crystals
 etching
 faces
 growth
 orientation
 twinning
 whiskers

Minerals
Polymorphism
Precipitation
Solids/
 structure
Surface texture
Zone melting and refining

MICROSTRUCTURE OF SOLIDS

Amorphous state
Crystal structure/
 microstructure
Electron diffraction examination
 [of materials]
Electron microscope examination
 [of materials]
Electron microscopy
Fibres
Granular structure
Ion microscopes

Metallurgy
Microscopy
Neutron diffr. exam. of materials
Particle size
Porous materials
Powders
Radiography
Surface texture
X-ray examination of materials
 microstructure
 molecular structure

CRYSTAL LATTICE STRUCTURES

Crystal structure, atomic
 elements
 alloys
 inorganic compounds
 organic compounds
Electron diffraction crystallography
Electron diffraction examination
 [of materials]
Electron microscope examination
 [of materials]
Neutron diffraction crystallography
Neutron diffraction examination
 [of materials]
Polymers

X-ray absorption
X-ray crystallography
 apparatus
 calculation apparatus
 calculation methods
 technique
X-ray diffraction
X-ray examination of materials
 molecular structure
X-ray measurement
X-ray monochromators
X-ray reflection
X-ray scattering
X-ray tubes

LATTICE MECHANICS

Crystals/
 lattice mechanics

Mössbauer effect

ACOUSTICAL PROPERTIES OF SOLIDS

Absorption/
 acoustic waves
 acoustic waves, ultrasonic
Acoustic wave propagation
 ultrasonic
Acoustoelectric effects
Diffraction/
 acoustic waves
 acoustic waves, ultrasonic
Dispersion, acoustic
 ultrasonic
Magnetoacoustic effects

Reflection/
 acoustic waves
 acoustic waves, ultrasonic
Refraction/
 acoustic waves
 acoustic waves, ultrasonic
Scattering/
 acoustic waves
 acoustic waves, ultrasonic
Transmission/
 acoustic waves
 acoustic waves, ultrasonic
Velocity/
 acoustic waves
 acoustic waves, ultrasonic

THERMAL PROPERTIES OF SOLIDS

Conductivity, thermal/
 measurement
 solids
Equations of state/
 solids

Heat conduction
Specific heat/
 solids
Thermal expansion
Thermodynamic properties

DIFFUSION IN SOLIDS

Diffusion in solids

Permeability, mechanical

DEFECT PROPERTIES OF SOLIDS

Cold working

Creep

Crystal imperfections

dislocations

interstitials

vacancies

Crystal structure

Crystals

etching

twinning

Deformation

Elastic deformation

Electron diffraction examination

[of materials]

Electron microscope examination

Heat treatment [of materials]

alloys

Internal friction

Neutron diffraction examination

Plastic deformation [of materials]

Plastic flow

Slip

Stresses, internal

Work hardening

X-ray examination of materials/
microstructure**Colour Centres**Absorption/
light

Colour centres

X-rays/
effects**RADIATION EFFECTS IN SOLIDS**Acoustic waves/
effectsAlpha-rays/
effectsBeta-rays/
effectsDeuterons/
effectsElectron beams/
effectsGamma-rays/
effectsHyperons/
effectsIon beams/
effectsMesons/
effectsNeutrons and antineutrons/
effects

Physical effects of radiations

Protons and antiprotons/
effects

Sputtering

X-rays/
effects**ELECTRICAL PROPERTIES OF SOLIDS**

Acoustoelectric effects

Conduction, electrical

Conductivity, electrical/
measurement
solids

Contact potential

Metals · Conductors

Electron gas

Hall effect

Magnetoelectric effects

Magnetoresistance

Superconductivity

Superconductivity

Superconducting Materials and Devices

Superconducting materials and devices

Semiconductors

Acoustoelectric effects

Contact potential

Contact resistance

Electron gas

Electro-optical effects

Fluctuations/
electrical**Semiconducting Materials**

Semiconducting materials

gallium arsenide

germanium

indium antimonide

silicon

Contact resistance

Crystal electron states

Eddy-currents

Electrical properties of substs.

Electron gas

Metals

theory

Piezoresistance

Skin effect

Hall effect

Magnetoelectric effects

Magnetoresistance

Magnetothermal effects

Piezoelectricity

Piezoresistance

Semiconductors

Space charge

Semiconducting DevicesCounters/
semiconductor

Semiconducting devices

diodes

p-n junctions

transistors

tunnel diodes

Rectifiers

MECHANICAL PROPERTIES OF SOLIDS

Abrasion

Adhesion

Bending

Brittleness

Cold working

Compressibility

Corrosion

Cracks

Creep

Deformation

Density/
solids

Elastic constants

measurement

Elastic deformation

Elastic fatigue

Elastic limit

Elastic relaxation

Elasticity

Fracture

Friction

Hardness

Heat treatment

alloys

High-pressure phenomena

Hysteresis [and effects]

Impact

Internal friction

Lubrication

Magnetomechanical effects

Mechanical properties of substs.

Mechanical strength

compressive

shear

tensile

Photoelasticity

Physical effects of radiations

Plastic deformation

Plastic flow

Plasticity

Rheology

Slip

Strain gauges

Stress analysis

Stress effects

Stress/strain relations

Stresses, internal

Thermoelasticity

Thixotropy

Torsion

Viscoelasticity

Wear

Work hardening

ELECTRON STATES IN SOLIDS

Crystal electron states

excitons

Fermi level

Fermi surface

plasma

polarons

surface

Crystal properties

Cyclotron resonance

Electron beams/
effects

Electron gas

Electron pairs/
annihilation

Electrons

absorption

radiation

scattering

Hall effect

Magnetoacoustic effects

Metals

theory

Piezoresistance

Solids

theory

Surface phenomena

Magnetothermal effects

Piezoelectricity

Piezoresistance

Resistance, electrical

Space charge

Electro-optical effects

Fluctuations/
electrical

Hall effect

Magnetoelectric effects

Magnetoresistance

DielectricsBreakdown, electric/
solids

Contact potential

Dielectric devices

Dielectric measurement

Dielectric phenomena

Dielectric properties of substs./
solids

Electrets

Electric charge

Electric fields

Electric strength

Electrostriction

Ferroelectric materials

barium titanate

Ferroelectric phenomena

Hysteresis

Piezoelectric oscillations

Piezoelectricity

Pyroelectricity

Relaxation

Rochelle salt

Space charge

Triboelectricity

THERMOELECTRIC PROPERTIES OF SOLIDS

Thermocouples

Thermoelectricity

PHOTOCONDUCTIVITY · PHOTOVOLTAIC EFFECTS

Photoconductivity

Photoelectricity

Photoelectromagnetic effects

Photovoltaic effects

ELECTRON AND ION EMISSION BY SOLIDS

Cathodes

oxide

Electron emission

field emission

photoelectric

secondary

thermionic

Ion emission

secondary

thermionic

Ionization/
solids

Ionization, surface

Work function

MAGNETIC PROPERTIES OF SOLIDS

Antiferromagnetism
de Haas—van Alphen effect
Diamagnetism
Electron diffraction examination
[of materials]
Electron microscope examination
[of materials]
Ferrimagnetism
Ferrites

Ferromagnetism
spin-wave theory
Gyromagnetic ratio
Hall effect
Hysteresis
Magnetic devices
Magnetic fields/
effects
Magnetic films

Magnetic properties of subst.
antiferromagnetic
diamagnetic
ferrimagnetic
ferromagnetic
paramagnetic
transitions
Magnetism
Magnetization process
Magnetization state
domains

Magnetoacoustic effects
Magnetoelectric effects
Magneto-optical effects
Magnetoresistance
Magnetostriction
Magnetothermal effects
Neutron diffraction examination
[of materials]
Paramagnetism
Zeeman effect

Paramagnetic Properties

Magnetic properties of substances/
paramagnetic

Paramagnetism

Ferromagnetic Properties

Ferromagnetism
spin-wave theory
Hysteresis
Magnetic devices
Magnetic films

Magnetic properties of substances/
ferromagnetic
Magnetization process
Magnetization state
domains

Ferrimagnetic Properties • Ferrites

Ferrimagnetism
Ferrites
Hysteresis
Magnetic devices

Magnetic films
Magnetic properties of subst.,
ferrimagnetic

Antiferromagnetic Properties

Antiferromagnetism

Magnetic properties of subst.,
antiferromagnetic

MAGNETIC RESONANCES IN SOLIDS

Antiferromagnetic resonance
Cyclotron resonance
Ferrimagnetic resonance

Ferromagnetic relaxation
Ferromagnetic resonance
Gyromagnetic ratio

Magnetic resonance and relaxation
Magnetomechanical effects
Nuclear magnetic resonance and
measurement [relaxation]

Nuclear quadrupole resonan
Optical pumping
Paramagnetic resonance and
measurement [relaxation]

OPTICAL PROPERTIES OF SOLIDS

Absorption/
electromagnetic waves
light
Diffraction/
electromagnetic waves
light
Diffusion/
electromagnetic waves
light
Dispersion, optical
Double refraction
mechanical
Electromag. wave propagation
Electro-optical effects
Emissivity
Interference/
light

Lasers/
solid
Magneto-optical effects
Optical constants
Optical films
Optical materials
Optical properties of substances
Optical pumping
Optical rotation
Photoelasticity
Pleochroism
Polarized light
Raman spectra
inorganic
organic
Reflection/
electromagnetic waves
light
Reflectivity

Refraction/
electromagnetic waves
light
Refractive index/
light
Scattering/
electromagnetic waves
light
Spectra/
inorganic solids
radiofrequency
organic molecules and
infrared [substances
radiofrequency]

Spectral line breadth
Stark effect
Transmission/
light
Transparency
Velocity/
light
X-ray spectra
absorption
emission
Zeeman effect

Luminescence of Solids

Colour centres
Counters, scintillation
Electroluminescence

Luminescence/
solids, inorganic
solids, organic
Luminescent devices
Thermoluminescence

PHYSICAL CHEMISTRY

Atomic mass and weight
Balances
Bonds
Centrifuges
Chemical structure
Chemical technology

Distillation
Elements
origin
relative abundances
Filters
Isomerism

Laboratory app. and technique
Macromolecules
Molecular weight
Molecular weight determ.
Periodic system

Physical chemistry
Precipitation
Pumps
Quantum chemistry
Sedimentation
Valency

THERMOCHEMISTRY • REACTIONS

Association
gases
liquids
Catalysis
Chemical reactions
Combustion
Corrosion
Crystal chemistry
Detonation
Dissociation
Exchanges, chemical
Explosions
Flames

Heat of adsorption
Heat of combustion
Heat of dissociation
Heat of formation
Heat of reaction
Isotope exchanges
Oxidation
Phase equilibrium
Phase transformations
Polymerization
Polymers
Reaction kinetics
Sorption

PHOTOCHEMISTRY**RADIATION CHEMISTRY
RADIOCHEMISTRY**

Chemical effects of radiations
acoustic waves
ionizing radiations

Nuclear reactions/
chemical effects
Photochemistry
Radiochemistry

**PHYSICAL METHODS
OF CHEMICAL ANALYSIS**

Chemical analysis
adsorption
by mass spectrometry
by nuclear reactions
electrochemical
radioactive
X-ray

Chromatography
Radioactive tracers
Spectrochemical analysis
Tracers

ELECTROCHEMISTRY

Conductivity, electrical/
liquids, electrolytic
Dissociation/
electrolytic
Electrochemistry
electrodes
Electrokinetic effects

Electrolysis
Electrolytic deposition
Electrophoresis
Ion velocity/
electrolytic
Ions, electrolytic

GEOFYSICS

Earth	Geodesy	Gravity	Radioactivity
age	Geophysical prospecting	Minerals	Seawater
composition	Geophysics	Oceanography	Seismic waves
electricity	Glaciers	Radioactive dating	Seismology
heat			Soil
rotation			

ATMOSPHERE

Altimeters	Atmospheric acoustics	Electromagnetic wave propagation/ atmosphere	Meteorology
Anemometers	Atmospheric electricity	Evaporation	Rain
Atmosphere	Atmospheric optics	Fallout	Rockets
composition	Atmospheric pressure and [density]	Fog	Satellites, artificial
humidity	Atmospheric spectra	Humidity	Sky brightness
movements	Atmospherics	Hygrometers	Snow
precipitation	Clouds	Ice	Sunlight
radioactivity	Condensation	Lightning	Thunderstorms
structure		Meteorological instruments	Twilight
temperature			Wind
thermodynamics			

UPPER ATMOSPHERE

Airglow	Atmospheric pressure and [density]	Ionosphere	
Altimeters	Atmospheric spectra	Atmospherics	Ionosphere
Atmosphere	Atmospherics	Aurora	D-region
composition	Aurora	Electromag. wave propagation ionosphere	E-region
movements	Fallout	Ionization, atmosphere	F-region
radiation belts	Ionization, atmosphere	Ionization, atmosphere	Ionosphere meas. apparatus
radioactivity	Meteors		
structure	Rockets	SPACE RESEARCH TECHNIQUES	
temperature	Satellites, artificial	Rockets	Space vehicles
thermodynamics	Sky brightness	Satellites, artificial	instrumentation
upper	Sunlight	Space research	
Atmospheric electricity	Twilight		
Atmospheric optics	Zodiacal light		

GEOMAGNETISM

Compasses	Magnetic storms
Earth/	Rock magnetism
magnetic field	
magnetic field, variations	

ASTROPHYSICS

Astronomical instruments	Elements/ origin	SOLAR SYSTEM · SUN	
Astronomical observations	relative abundances	Comets	Sun
Astronomical spectra	Gravitation	Cosmic rays	corona
Astronomy and astrophysics	Interstellar matter	Earth	eclipses
Celestial mechanics	Telescopes/ astronomical	rotation	flares
Cosmic rays		Gravitation	magnetism
Cosmology		Interplanetary magnetic field	prominences
		Interplanetary matter	radiation
		Meteorites	radiation, corpuscular
		Meteors	radiation, r.f.
		Moon	spectra
		Planets	Sunspots
		Solar system	Zodiacal light
		RADIOASTRONOMY TECHNIQUES	
		Cosmic radiations, r.f.	Radioastronomy

STARS · GALAXIES

Cosmic radiations, r.f.	Stars
Galaxies	composition
the Galaxy	magnetism
Interstellar matter	radiation
Magnetohydrodynamics	spectra
Nebulae	structure
Novae	Thermonuclear reactions

BIOPHYSICS

Biological effects of radiations	Medical science
Biological technique and [instruments]	Physiology
	Proteins
Biology	Radiation protection
Biophysics	Radiography
Blood	Zoology
Dosimetry	

TECHNIQUE · MATERIALS

Biological technique and instruments	Metallurgy
Chemical technology	Vacuum technique
Heat treatment	Zone melting and refining
alloys	
Laboratory apparatus and technique	HIGH-PRESSURE
Leak detection	TECHNIQUES
Low-temperature technique	
Materials	High-pressure phenomena [and effects]

SUBSTANCES

Chemical elements and inorganic compounds

All the chemical elements are listed by name, followed by their compounds, e.g. "Cadmium", "Cadmium compounds".

"Hydrogen" is subdivided by the subheadings "neutral atoms", "neutral molecules", and "ions". "Deuterium" and "Tritium" are independent headings. "Hydrogen compounds" is supplemented by "Ice", "Steam", and "Water".

"Oxygen" is supplemented by "Ozone", and "Carbon" is supplemented by "Diamonds" and "Graphite".

The following inorganic compounds are further subdivided by subheadings as shown:-

Barium compounds	Nitrogen compounds
barium titanate*	ammonia
Cadmium compounds	ammonium compounds
cadmium sulphide	Potassium compounds
Calcium compounds	potassium bromide
calcium fluoride	potassium chloride
Gallium compounds	Sodium compounds
gallium arsenide**	sodium chloride
Indium compounds	Zinc compounds
indium antimonide**	zinc sulphide
Lithium compounds	
lithium fluoride	

* Ferroelectric properties are listed under "Ferroelectric materials/barium titanate"

** Semiconducting properties are listed under the corresponding subheadings of "Semiconducting materials"

Organic compounds

Organic compounds are grouped under headings "Organic compounds", "Polymers", "Plastics", "Proteins". "Rochelle salt" is an independent heading.

Substance groups

In addition there are the following headings for groups of elements, compounds or substances:-

Actinides	Metals
Actinide compounds	Minerals
Alkali metals	Rare-earth metals
Alkali-metal compounds	Rare-earth compounds
halides	Semiconductors
Alkaline-earth metals	Semiconducting materials
Alkaline-earth compounds	gallium arsenide**
Ferrites	germanium**
Ferroelectric materials	indium antimonide**
barium titanate*	silicon**
Garnets	Transition metals
Halogens	Transition-metal compounds
Inert gases	

* Used for ferroelectric properties only

** Used for semiconducting properties only

Alloys

General papers on alloys are indexed under "Alloys". Alloys of specified composition are listed under, either

- (i) special alloy headings (there are five of them: "Aluminium alloys", "Copper alloys", "Iron alloys", "Nickel alloys", "Steel"), e.g. Al-Ni alloys under "Aluminium alloys", or
- (ii) compounds of the base or first-named element, e.g. Mn-Zn alloys under "Manganese compounds", and silicon-iron under "Iron alloys".

Special substances and materials

There are also the following special headings for certain common substances:-

Air	Paper
Blood	Porous materials
Ceramics	Powders
Clay	Quartz
Coal	Rubber
Concrete	Ruby
Fibres	Sand
Gelatin	Seawater
Glass	Soil
Mica	Waxes
Optical materials	Wood

ADP(ammonium dihydrogen phosphate). See Nitrogen compounds/
ammonium compounds

Abaca. See Nomograms.

Aberrations, optical

See also Electron lenses; Ion optics; Optical instrument testing; Optics/geometrical; Particle optics.
analysis, Schmidt-Cassegrain telescopes 6=3607
astronomical telescope corrector, aspheric 6=18997
astronomical telescope focus correction 6=18996
contrast transfer function, theory and practice 6=530
evaluation, with Twyman interferometer 6=13672
laser beam lens design 6=13670
measurement, with shearing interferometer 6=13725
measuring and demonstration 6=13671
objectives, chromatism 6=528
point spread function of objective by photoelectric scanning 6=6536
reconstruction of image aberr. by holography 6=529
spherical, 3rd order, differentials with respect to construction parameters 6=9871
superachromatism with five element prism 6=13674
and transfer function phase, aberration effects 6=6537

Abrasion

See also Hardness; Wear.
airbrasive cutter drive 6=19144
metals, electron emission photoelec., residual gas effects 6=12490
Al, electron emission, photoelec., residual gas effects 6=12490
ZnS, surface damage rel. to darkening 6=12040

Absorption

See also subheadings of Alpha-rays; Beta-rays; Cosmic rays; Electrons; Gamma-rays; Hyperons; Mesons; Neutrons and antineutrons; Protons and antiprotons; and also Sorption; X-ray absorption.
cryodeposited films, 77°K blackbody radiation 6=197
metals, tensor description of magnetic effect 6=5062
metals, theoretical study of surfaces 6=1968
photon, resonance in disintegration of Li^0 6=4153
quartz, dielectric absorption peaks 6=8247
satellite coatings solar absorbance measurement, in terms of angle of incidence 6=3057
silica, fused, dielectric absorption peaks 6=8247
solar absorbance, measurement of thermal control surfaces in terms of angle of incidence 6=193
thermal radiation, emission absorption and transmission in cavities and passages 6=183
Kr on Ni films and Pyrex 6=1826
 O_2 by Mn-Zn ferrites, 700 to 1400°C 6=4871
Ti films, of H_2 6=18818
 Y_2O_3 single crystals, Er^{3+} doped, two-photon process obs., possible mechanism 6=5767

acoustic waves

See also Noise abatement; Transmission/acoustic waves.
absorbers, porous, refl. and transmission of shock waves 6=13377
airborne sound-absorber, rel. to reverberation time of a plate 6=13362
anisotropic anharmonicity, effect 6=11910
atmosphere, radiative by water vapour 6=18884
in channels, rel. to transverse subdivision 6=9498
rel. to chemical reactions, determ. of kinetics 6=5828
and crystal dislocations and internal friction 6=15309
deep ocean, attenuation in sub and low kc/s region 6=2928
electrolytes, acoustic relaxation 6=4686
gases, phenomenological theory of relaxation 6=4598
gases, translational dispersion 6=4597
by glycerol and water mixtures, anomalous 6=4693
gypsum double-leaf board partition system, humidity effects 6=6279
lined duct, effect of shear flow on attenuation 6=162
liquids, thermal relaxation 6=7754
metal, spin-density-wave model 6=5052
metals, for superconducting energy gap meas., electron-damped dislocation effects 6=15533
over snow covered fields 6=12954
phase transition points, theory 6=6281
pipe organ, resonance cross. 6=3327
polyisobutylene in solvents, rel. to theory 6=4688
polystyrene in toluene, rel. to theory 6=4688
solids, theory 6=11911
in solutions, model 6=11556
sound absorbers for noise reduction, efficiency 6=9508

Absorption—contd

acoustic waves—contd

by superconductor, type II 6=12283
superconductors with current flow 6=15554
water, and sonoluminescence, static press. var. 6=1657
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